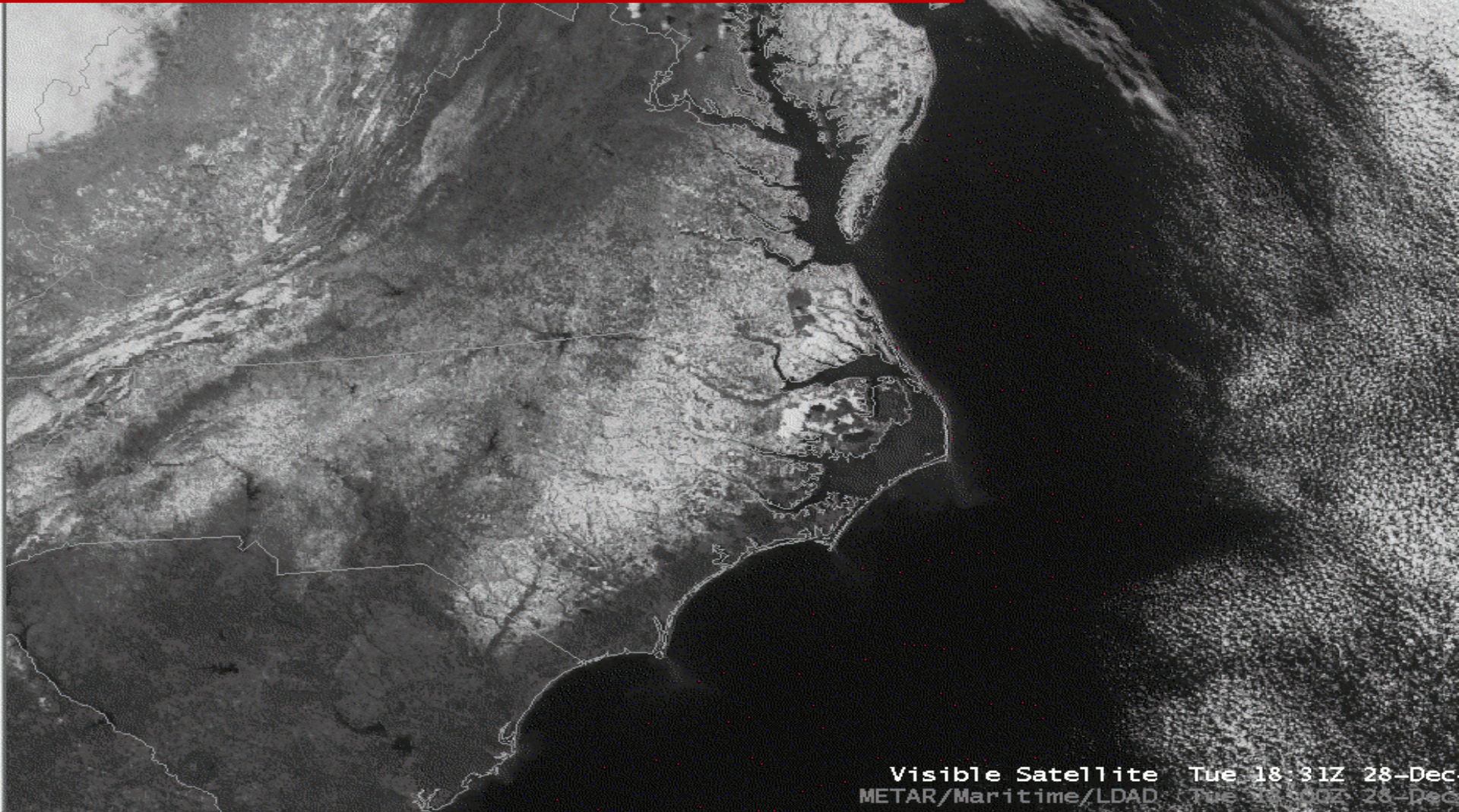



DECEMBER 25-26TH 2010 SNOWSTORM



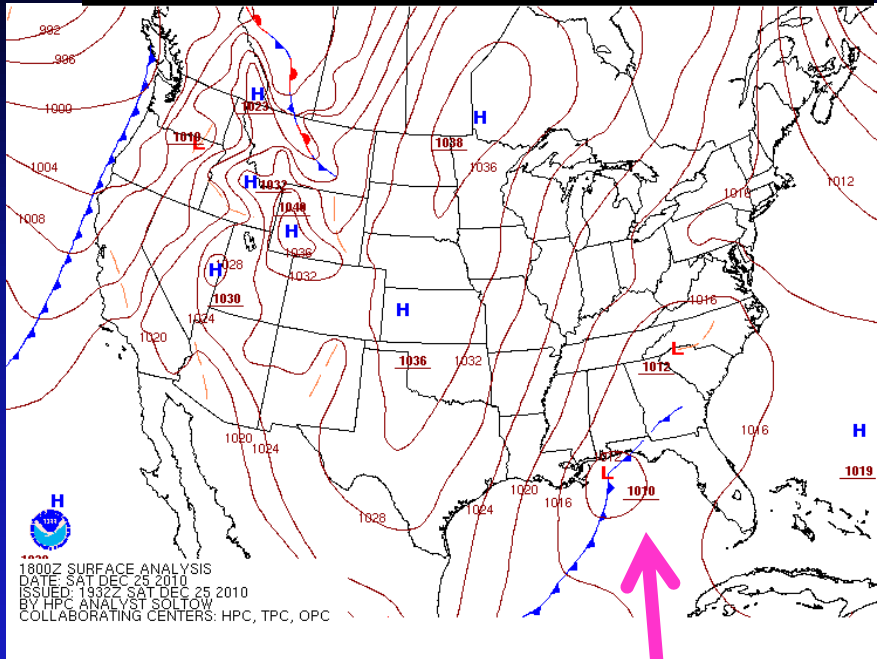
Visible Satellite Tue 18:31Z 28-Dec
METAR/Maritime/LDAD Tue 18:00Z 28-Dec

☒ Radar: 

Frames: 24 Time: 14:29 Z 29-D

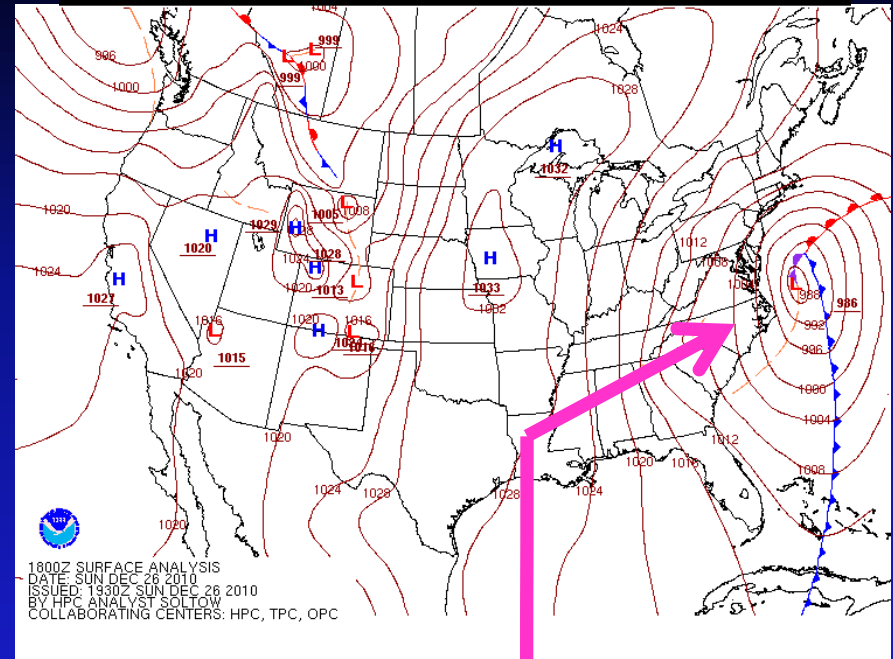
The Synoptic Setup (Surface)

18Z (1 pm EST) Sat Dec 25th



Weather across the mid-Atlantic is quiet as the area of Low Pressure moves along the Gulf coast.

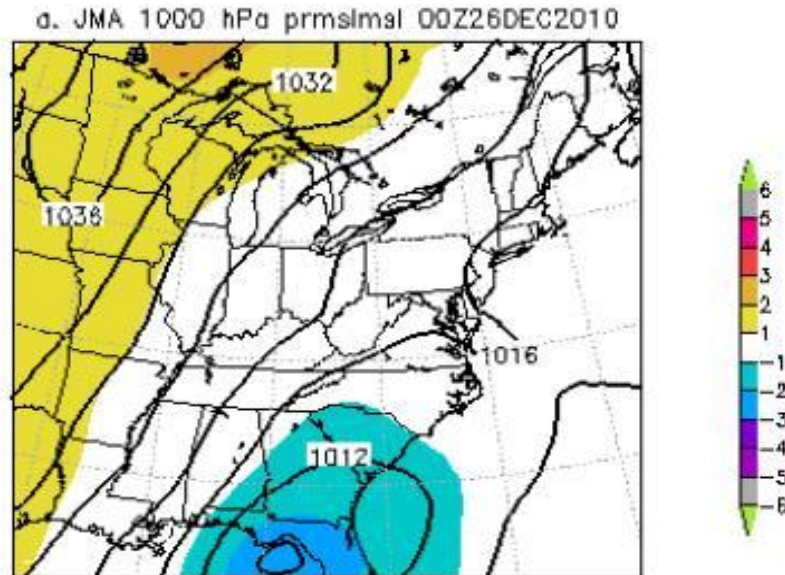
18Z (1 pm EST) Sun Dec 26th



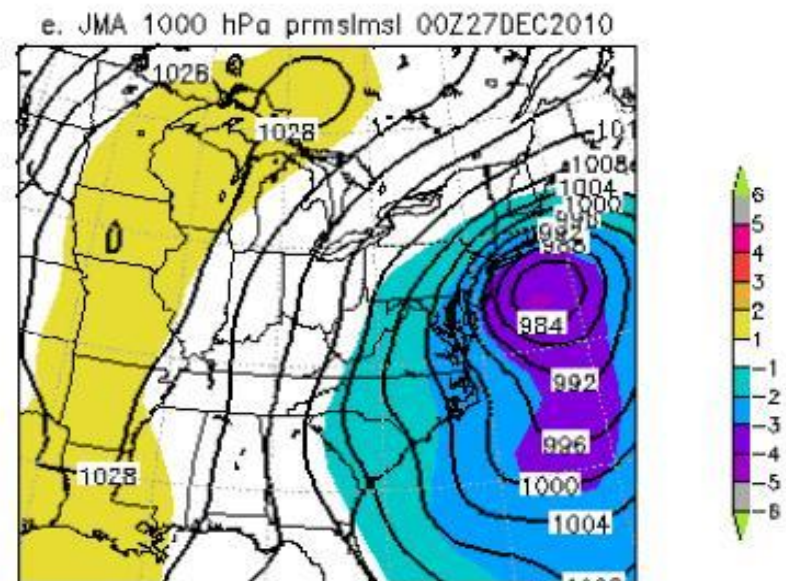
24 hours later Low pressure pushes northeast over the Southeast /Carolinas and eventually off the VA/NC coast on Sunday. Snow moved over the region Saturday night ahead of it with some mixing with sleet and rain over NE NC early Sunday morning as warmer air near the surface developed along the coast before changing back to all snow after daybreak.

The Synoptic Setup (MSLP)

00Z (7 pm EST) Sat Dec 25th



00Z (7 pm EST) Sun Dec 26th

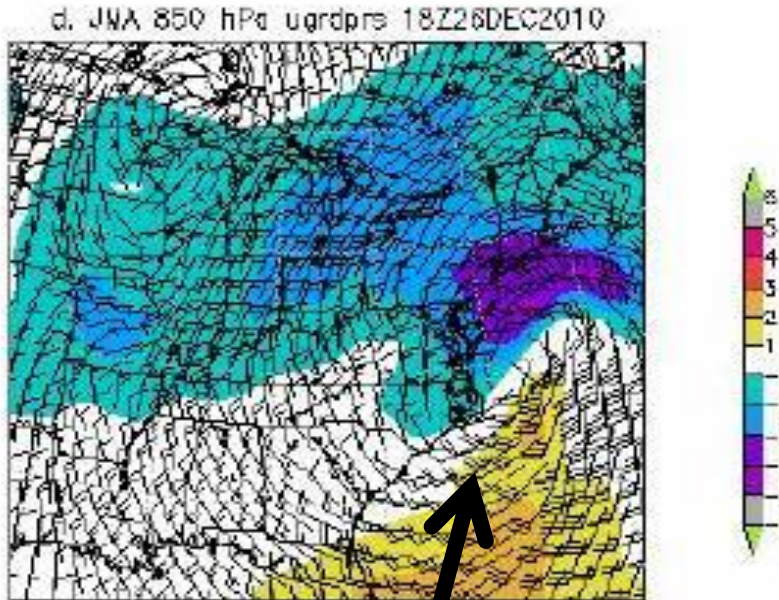


The map above depicts the Sea Level Pressure initialization from the GFS, and the departure (anomaly) from climatology.

Above is the same initialization two days later. Notice the deepening trough over the New Jersey Coast (Sea Level Pressure heights) between 3 and 4 standard deviations below normal.

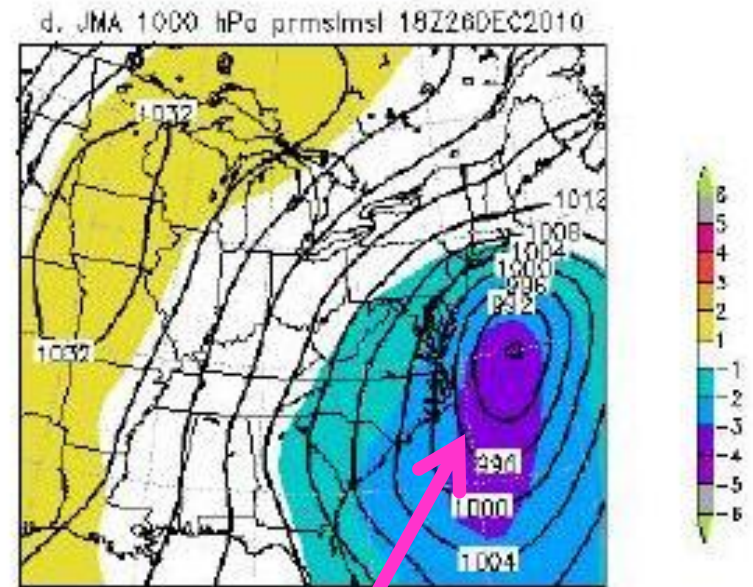
Significant/Anomalous?

Valid 18Z 1 pm EST) Sun Dec 26th



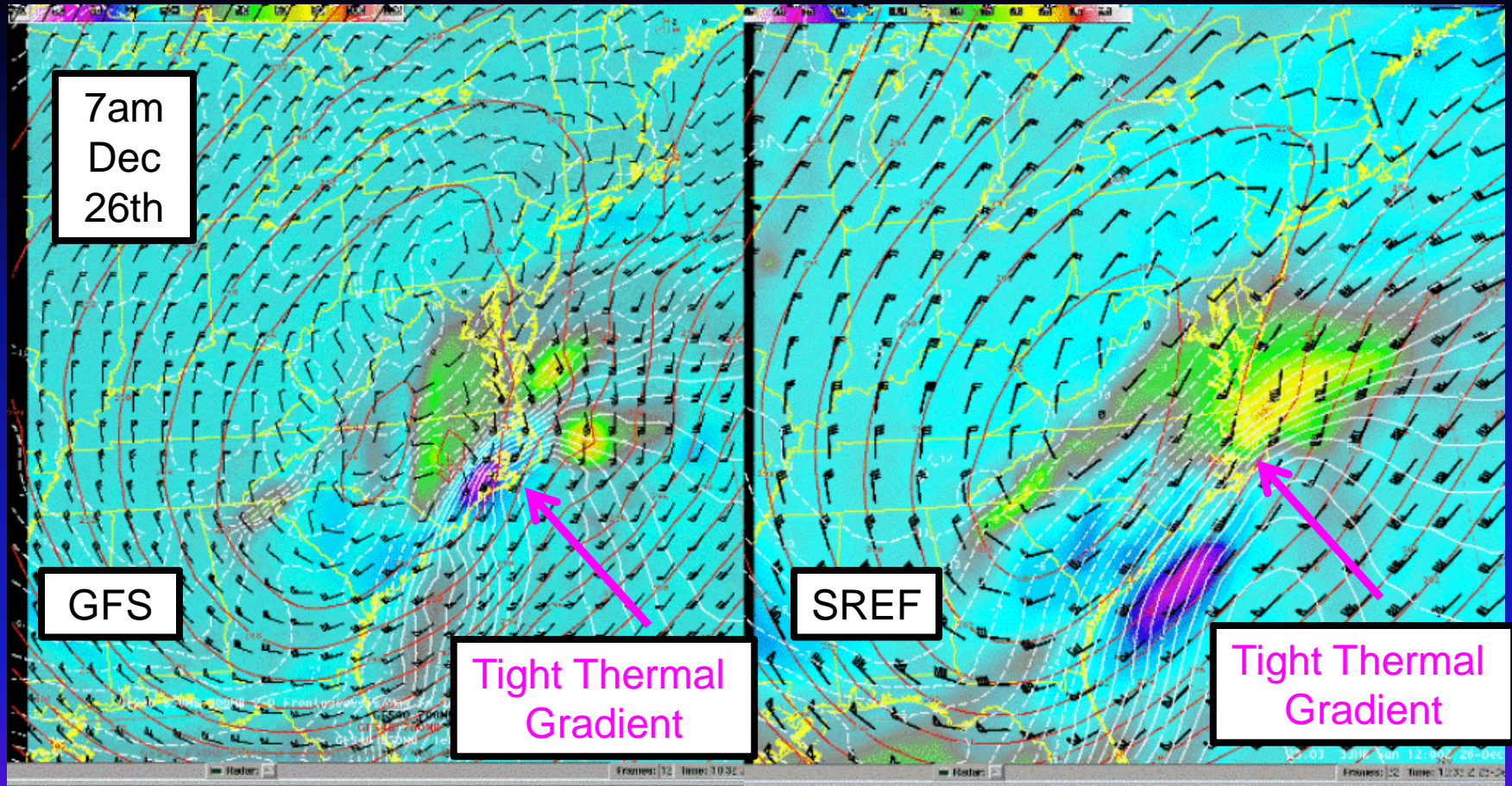
The map above depicts the **U** (east-west component) of the 850 mb winds compared to climatology. Note the large area of eastern Virginia that is at least **4 standard deviations** outside of normal. This indicates the potential for a significant “event”.

18Z (1 pm EST) Sat Jan 30th



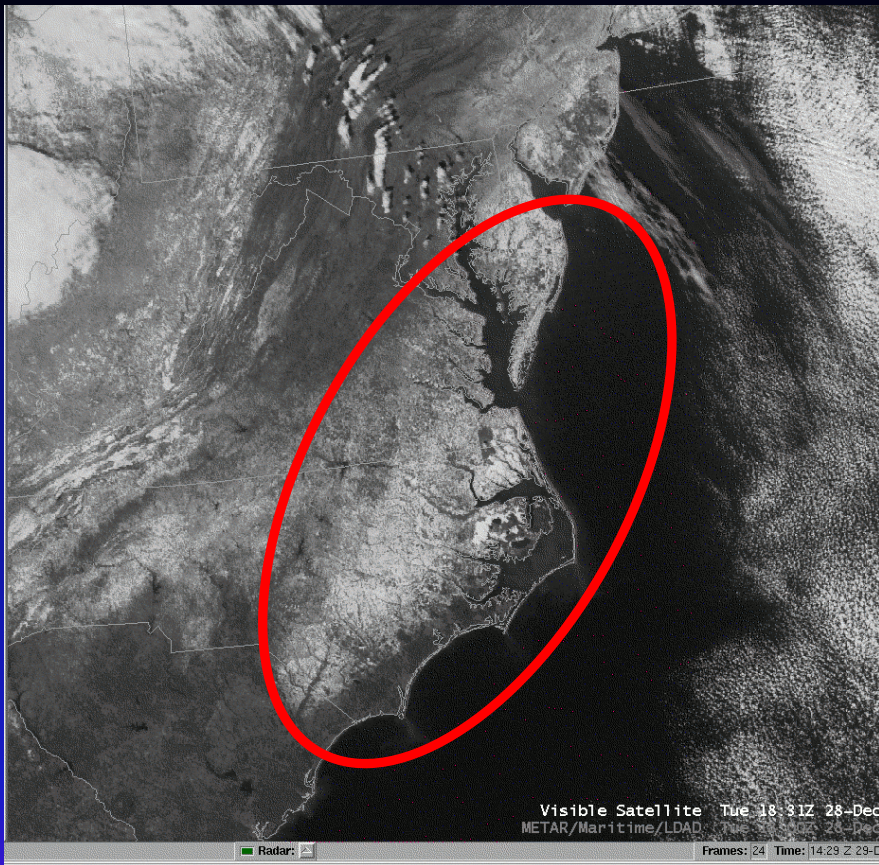
The map above is a model depiction of the mean sea level pressure (MSLP) compared to climatology. A negative anomaly centered off the Mid-Atlantic coast is a common setup for a potential significant “event”.

00z Dec 25th - Model Runs (36 hrs out)

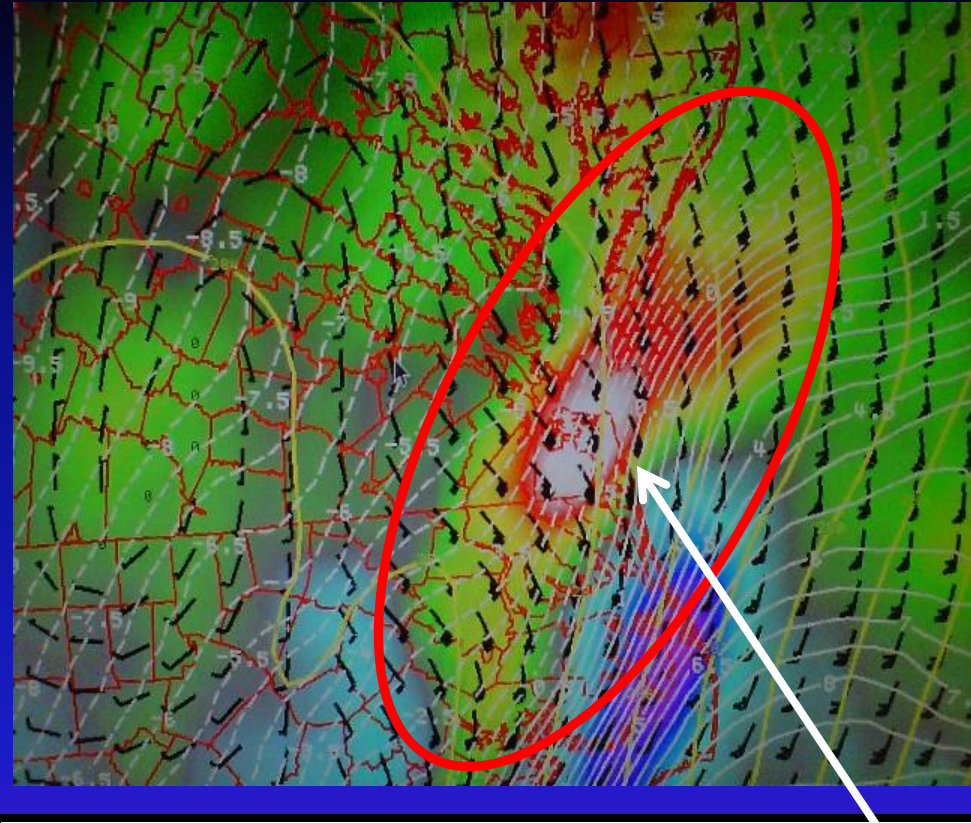


Black lines-700mb winds, White lines 850mb temps.
Red lines 700 mb pressure. Color 850-500mb Frontogenesis

Visible Satellite (Dec 28th) vs. RUC Forcing (Dec 26th)



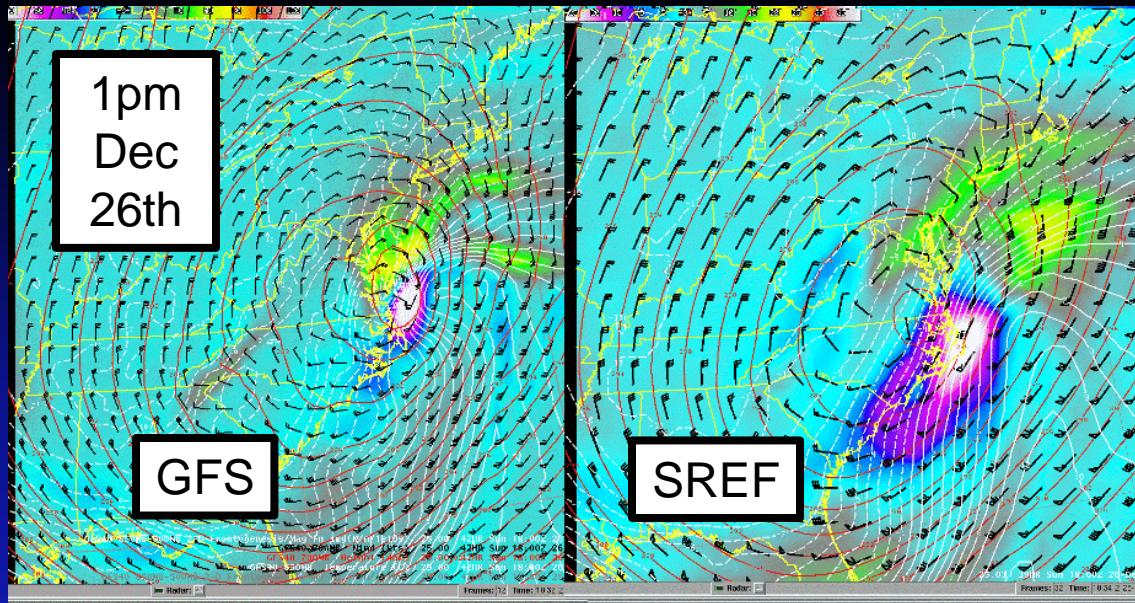
The deepest snow cover following the storm can be seen from the Virginia and Maryland eastern shore southwest into eastern North Carolina, lining up well with the frontogenesis depicted by the RUC model at the height of the storm on Dec 26th.



RUC Model/03Z /26th Run Forecast for 10am/15Z Dec 26th:

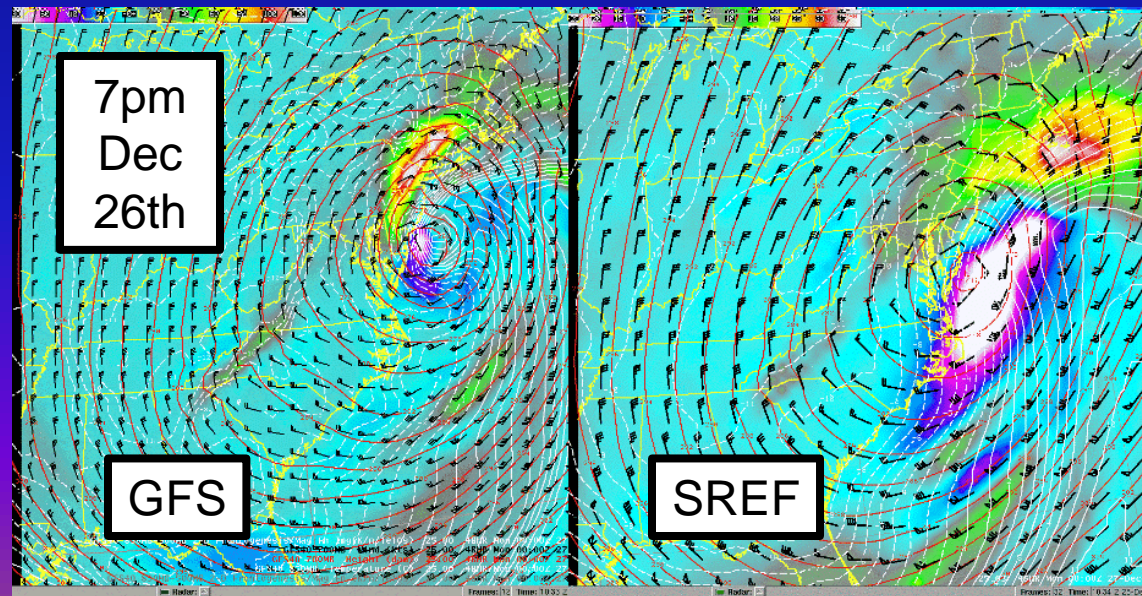
Best area of forcing where best vertical motion (red/white) 850-500MB frontogenesis exists with a dramatic (tight gradient) temperature change at 850MB. Snowfall rates of 1-2 inches per hour were occurring in highlighted area yellow/red /white

00z Dec 25th - Model Runs



42 hrs out

Best area of forcing continues northward along the coast where best vertical motion (red/white) 850-500MB frontogenesis exists with a dramatic (tight gradient) temperature change at 850MB. Both the GFS/SREF fairly similar.

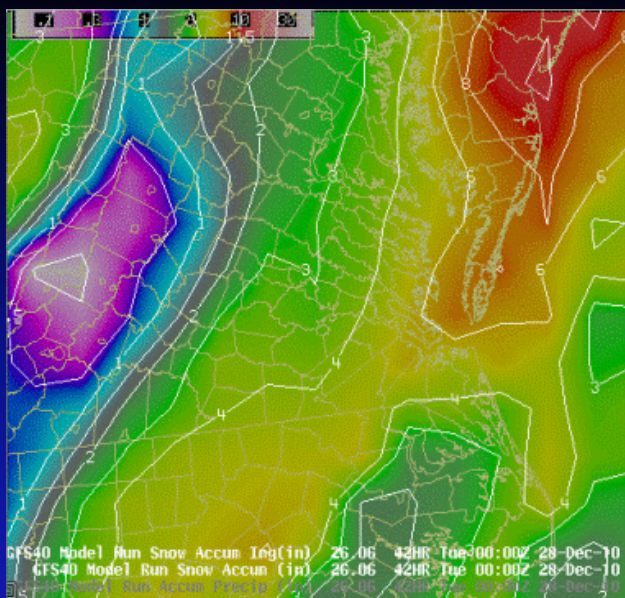


48 hrs out

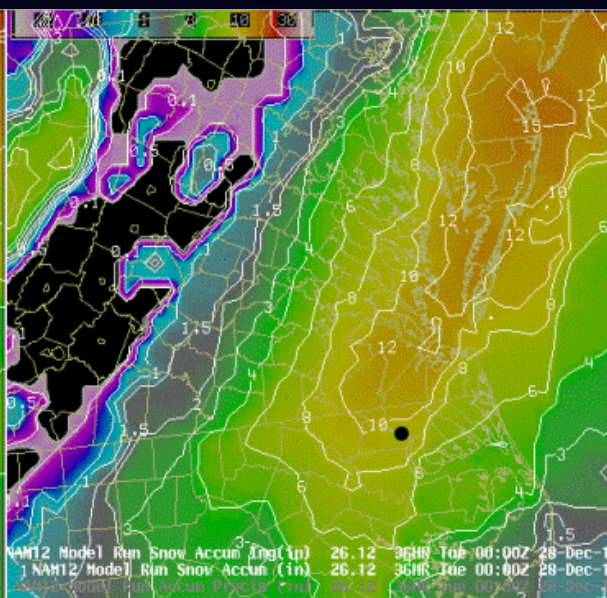
Varying Solutions of snowfall amounts (inches)

12z run Dec 26th (morning of the storm)

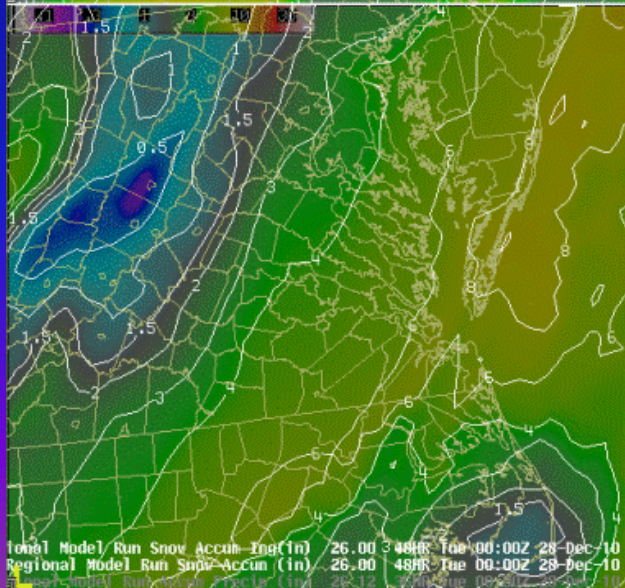
GFS



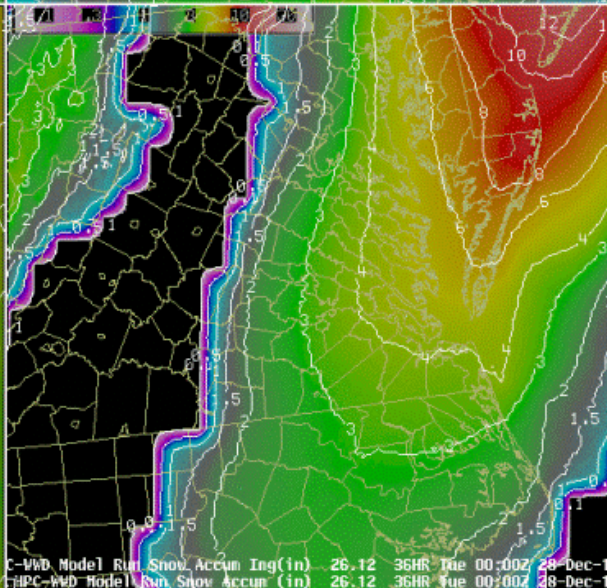
NAM



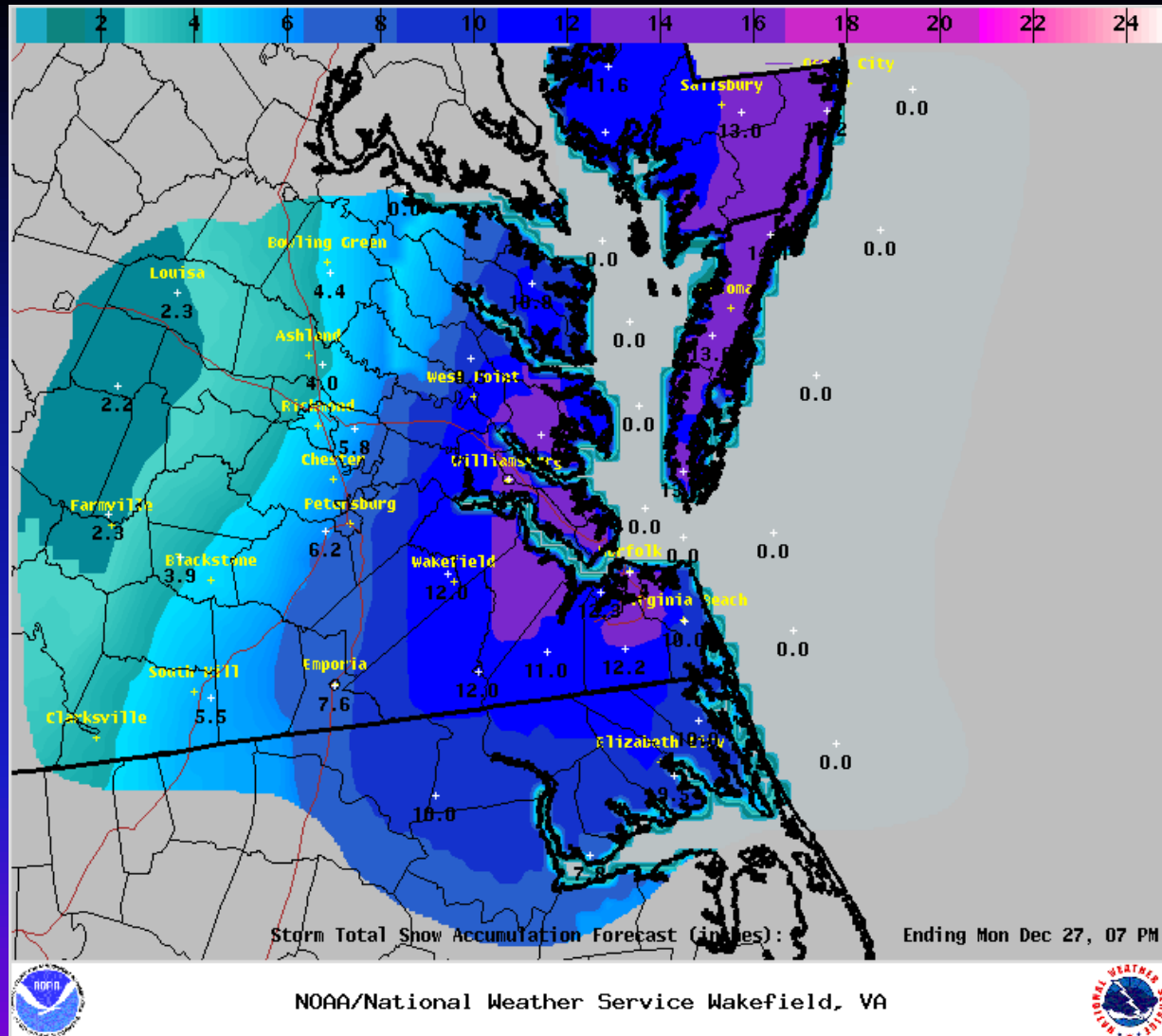
GEM



HPC's
FCST



Snow-map Issued Sun am



Trended Higher snow amounts over SE VA

Wakefield CWA 4am Sun AFD

FXUS61 KAKQ 260810
AFDAKQ

AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE WAKEFIELD VA
310 AM EST SUN DEC 26 2010

.SYNOPSIS...

LOW PRESSURE WILL INTENSIFY AS IT MOVES NORTHEAST ALONG THE EASTERN SEABOARD TONDAY INTO MONDAY. HIGH PRESSURE SETTLES OVER THE SOUTHEAST STATES EARLY NEXT WEEK AS LOW PRESSURE LINGERS OVER ATLANTIC CANADA.

&&

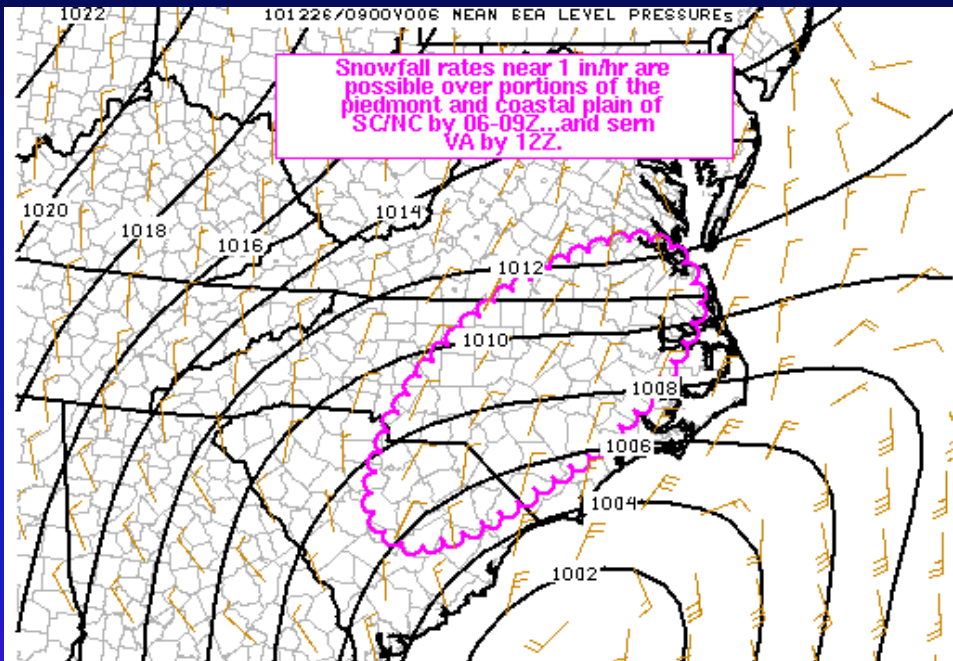
.NEAR TERM /THROUGH TONIGHT/...

WINTER STORM WARNINGS/ADVISORIES HAVE NOT CHANGED FOR THIS UPDATE. WILL LEAVE AS IS WITH LIMITED CONFUSION...ALTHOUGH WE MAY NOT REACH WARNING CRITERIA OVER THE ERN VA PIEDMONT AS BETTER FORCING LOOKS TO REMAIN FURTHER TO THE EAST.

OVERRUNNING PRECIP FROM LAST EVE INTO EARLY THIS MORNING HAS GNRLY YIELDED 1-3 INCHES OVER MUCH OF SOUTH CENTRAL AND ERN VA (SEE LATEST WBCPNSAKQ FOR MORE INFO).

MAIN SFC LOW DVLPG OFF THE GA/SC COAST WITH A WARM FRONT EXTENDING TO THE NE OF IT OVER THE GULF STREAM. FOR THIS MORNING...THINGS REALLY PICK UP AS H85-50H 2D FRONTOGENESIS DVLPS SIGNIFICANTLY AFT 09Z OVER SE VA/NE NC AS THE SFC LOW BEGINS TO RAPIDLY DEEPEN OFF THE ATLC COAST WITH MORE SIGNIFICANT PRECIP PUSHING INTO THE AKQ CWA FROM THE S/SW. INITIALLY...THIS WILL BE FOCUSED IN NE NC AND FAR SE/SRN VA (WITH RUC/NAM SUPPORT)...AND BETWN 12-15Z WILL OVERSPREAD MUCH OF CNTRL AND ERN VA (FOR THE MOST PART EAST OF I-95). COULD SEE SNOW AMOUNTS OF 1-2 INCHES PER HOUR IN HEAVIER FORCING AREAS (ESP THE TIDEWATER/HAMPTON ROADS RGN INTO SOUTH CENTRAL VA). THIS COULD LEAD TO TIMES THAT ROAD CREWS WILL NOT BE ABLE TO CATCH UP/PLOW ROADS FAST ENOUGH FROM THE ADDITIONAL SNOW THAT FALLS. ALSO...NEAR WHITEOUT CONDITIONS MAY ALSO DEVELOP ADDING TO THE DIFFICULTY OF GETTING AROUND/TRAVELING OVER THE AREA. ADDITIONAL SNOW AMOUNTS OF 3-6 INCHES WILL BE POSSIBLE THROUGH 16Z.

SPC Mesoscale Discussion



SPC MCD #2134

MESOSCALE DISCUSSION 2134
NWS STORM PREDICTION CENTER NORMAN OK
1031 PM CST SAT DEC 25 2010

AREAS AFFECTED...PORTIONS OF THE COASTAL PLAIN/PIEDMONT OF
SC/NC...AND SERN VA

CONCERNING...HEAVY SNOW

VALID 260431Z - 260930Z

SNOWFALL RATES NEAR 1 IN/HR ARE FORECAST TO DEVELOP ACROSS PORTIONS
OF THE COASTAL PLAIN AND PIEDMONT OF SC/NC DURING THE 06-09Z TIME
PERIOD...AND SPREAD NWD TOWARD SERN VA TOWARD 12Z.

A WEAKENING UPPER IMPULSE IS CURRENTLY EXITING THE SERN ATLANTIC
STATES...WITH SNOWFALL RATES GENERALLY DECREASING IN ITS WAKE ACROSS
PORTIONS OF GA/SC/NC. HOWEVER...A MORE SIGNIFICANT UPPER-LEVEL
DISTURBANCE POSITIONED OVER MS/AL DURING THE EVENING...IS POISED TO
EJECT TOWARD THE COASTAL PLAIN OVERNIGHT...AND WILL LEAD TO SURFACE
CYCLOGENESIS OFF THE SC/NC COAST. AS THIS TAKES PLACE...NEAR
FREEZING SURFACE TEMPERATURES WILL BE DRAWN SWD ACROSS THE PIEDMONT
AND INTO THE COASTAL PLAIN...WHICH IS EXPECTED TO AID IN A
TRANSITION TO ALL SNOW ACROSS MUCH OF THE DISCUSSION AREA.

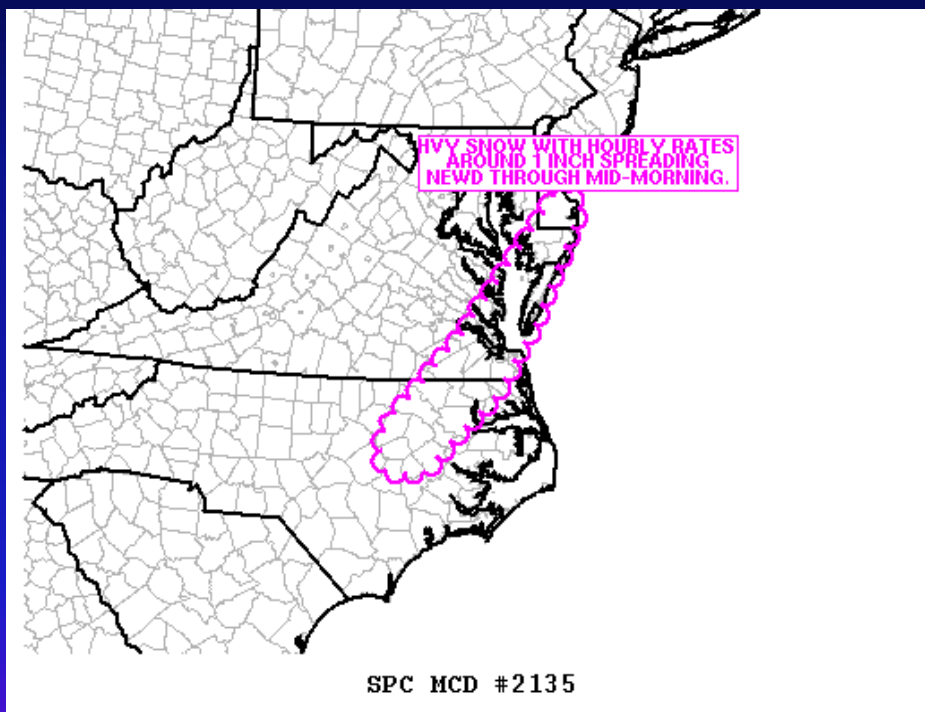
UPPER AIR ANALYSIS AT 00Z INDICATES A LOW TO MIDLEVEL BAROCLINIC
ZONE IS POSITIONED ROUGHLY PARALLEL TO THE ATLANTIC COAST...AND
MODEL GUIDANCE SUGGESTS IT WILL REMAIN IN PLACE THROUGH THE NIGHT.
AS LOW-LEVEL CYCLOGENESIS TAKES PLACE...THIS BAROCLINIC ZONE WILL
FOCUS A DEEP LAYER OF STRENGTHENING FRONTOGENESIS ACROSS THE REGION.
INCREASING LARGE SCALE ASCENT...ASSOCIATED WITH THE APPROACHING
TROUGH...WILL SPREAD ACROSS THE FRONTOGENETIC ZONE...AND WILL BE
ACCOMPANIED BY WEAK ELEVATED INSTABILITY ROOTED NEAR 600
MB...FAVORING MODERATE TO STRONG VERTICAL MOTION THROUGH THE
DENDRITIC GROWTH ZONE...WHICH WILL AID IN THE DEVELOPMENT OF
SNOWFALL RATES NEAR 1 IN/HR STRADDLING THE SC/NC FALL LINE BY
06-09Z. AS THE DEEPENING CYCLONE CONTINUES TO SHIFT NWD...INCREASING
SNOWFALL RATES MAY SPREAD INTO PORTIONS OF SERN VA BY 12Z.

..GARNER.. 12/26/2010

ATTN...WFO...AKQ...MHX...RAH...ILM...RNK...CAE...GSP...

LAT...LON 36487613 35587676 34827763 33717973 33618063 33998101
34928080 35948001 36747880 37257735 37157653 36487613

SPC Mesoscale Discussion 2



MESOSCALE DISCUSSION 2135
NWS STORM PREDICTION CENTER NORMAN OK
0309 AM CST SUN DEC 26 2010

AREAS AFFECTED...ERN NC...ERN VA...SRN MD...SRN DE

CONCERNING...HEAVY SNOW

VALID 260909Z - 261515Z

HEAVY SNOW WITH HOURLY RATES AROUND 1 INCH WILL DEVELOP/SPREAD FROM ERN NC INTO ERN VA BY 12Z AND INTO SRN MD AND SRN DE 12-15Z. HIGHEST PROBABILITY FOR HEAVIEST RATES WILL EXIST IN A 40-50 MILE BAND CENTERED GOLDSBORO NC-20NW NORFOLK VA-25N SALISBURY MD.

09Z SURFACE LOW WAS BEGINNING TO RAPIDLY DEEPEN OFF THE SC COAST AS STRONG PV-ANOMALY BEGINS TO SWING ENE ACROSS SE GA/SRN SC. THE LOW IS EXPECTED TO TRACK NNE OFF THE NC CAPE BETWEEN 12-15Z AND E OF NORFOLK VA BY 18Z WHILE UNDERGOING VERY RAPID STRENGTHENING. PRE-DAWN TREND OF COOLING CLOUD TOPS OVER NC /DYNAMIC COOLING OF THE COLUMN/ AND ENHANCED ISALLOBARIC FORCING /MAINTENANCE OF LOW-LEVEL COLD ADVECTION/ WILL MAINTAIN HIGH-PROBABILITY OF ALL SNOW PRECIP-TYPE OVER THE REGION.

850-700 MB FRONTOGENESIS WILL PEAK AFTER 12Z...PARTICULARLY FROM SE VA NEWD INTO SRN DE WITH SNOW BANDS LIKELY NARROWING AND INTENSIFYING OWING TO COINCIDENT MAXIMUM IN LARGER-SCALE VERTICAL MOTION. IN FACT...LATEST RUC SOUNDINGS SUGGEST THAT UPRIGHT CONVECTION WILL BE POSSIBLE WITH 100-200 J/KG MUCAPE. THIS WILL ENHANCE SNOWFALL WITH RATES AROUND 1 INCH PER HOUR.

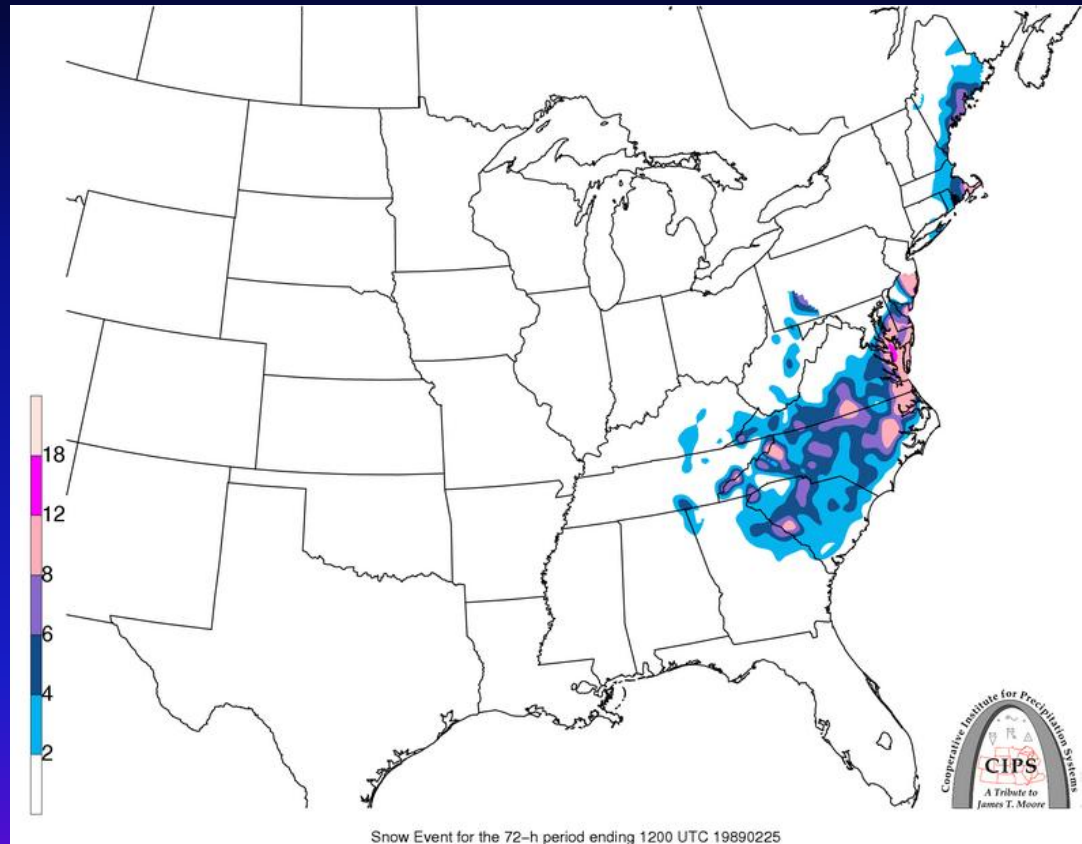
HEAVY SNOW WILL DEVELOP FARTHER NE INTO NJ AND THE NYC AREA BY EARLY/MID-AFTERNOON.

..RACY.. 12/26/2010

ATTN...WFO...PHI...AKQ...MHX...RAH...

LAT...LON 37037593 36467631 35377753 35427807 35727814 36017805
37147690 38967530 38737499 37277577 37037593

Snow Event Comparison



Feb 17th-19th 1989

Climatology:

Norfolk, VA Top 7 All-Time Snowfall Events

Rank	Date	Amount
1)	Dec 27-28, 1892	18.6"
2)	Feb 17-19, 1989	15.4"
* 3)	Dec 25-26, 2010	14.2"
4)	Mar 1-2, 1980	13.7"
5)	Feb 11-13, 1899	13.5"
6)	Feb 6-7, 1980	12.4"
7)	Feb 9-10, 1948	12.4"

*This event ranks **3rd all-time** in Norfolk since snow records began with the 1890/1891 season, and is one of just 7 events that have recorded 12.0" or more.

Snow Report Summary ([Click Here](#))